

REMARKS

This Amendment is in response to the Office Action dated September 14, 2005, in which claims 1-16 were initially rejected and claims 17 and 18 were withdrawn as being directed to a non-elected invention.

With this Amendment, Applicants respectfully request reconsideration and allowance of all pending claims in view of the above-amendments and the following remarks.

7I. CLAIM REJECTION UNDER §102(b)

Claims 1-3, 6, 8-11, 13-14 and 16 were rejected under §102(b) as being anticipated by Lee, U.S. Patent No. 6,366,223.

With this Amendment, independent claim 1 is amended to include the limitations of dependent claim 4, which has now been cancelled. Independent claim 9 is amended to include the limitations of dependent claim 12. Dependent claims 3-4, 11-12 and 15 are cancelled and dependent claims 2, 5-7 and 13 are amended to be consistent with amendments made to independent claims 1 and 9.

Since the Office Action acknowledges that Lee does not anticipate the elements of dependent claims 4 and 12, Applicants respectfully request that the rejection of claims 1 and 9 and their respective dependent claims under §102(b) based on Lee be withdrawn.

II. CLAIM REJECTIONS UNDER §103

Claims 4, 5, 7, 12 and 15 were rejected under §103(a) as being unpatentable over Lee in view of Suh et al., U.S. Patent No. 6,731,228.

A. Claims 4 and 12

The Office Action acknowledges that Lee does not describe the use of unchanged data words, but concludes that it would have been obvious for person of ordinary skill in the art to have applied Suh's RDS overflow to Lee's DC control procedure.

Looking at the Suh et al. patent, column 4, lines 3-26 describe that a generator 20 and a selector 22 translates user data words 19 into (d,k) constrained sequences 23. Generator 20 generates for each data word a number of intermediate sequences 41 by combining mutually different digital words with the data word 19. Generator 20 comprises a scrambler 42 that scrambles the intermediate sequences 41, one after each other, in order to form a selection set of alternative sequences 21, which are randomizations of the data word 19.

As described in column 5, lines 32-39, the low-frequency component (LFC) calculator 66 measures the DSV of the alternative (d,k) constrained sequences 51 while modulating those using a precoding device. The LFC calculator 66 calculates the RDS and the SEDS of each sequence and counts how many times the sign of an RDS is changed while calculating the RDS. If the RDS of a sequence exceeds a predetermined threshold, the LFC calculator 66 sets an overflow flag for the sequence.

The selection means 54 excludes alternative (d,k) constraint sequences for which the RDS overflow flag is set. As described in column 6, lines 19-28, selection means 54 checks whether there are remaining alternative (d,k) constrained sequences and, if so, selects one (d,k) constrained sequence with the largest number of sign changes in its RDS for recording onto a recordable medium.

Thus, contrary to statements made in the present Office Action, Suh et al. do not teach or suggest "unchanged" data words. Rather, Suh et al. select between alternative (d,k) constraint sequences, and those sequences having a set RDS overflow flag are excluded.

Therefore, even if the structure disclosed by Suh et al. were combined with that of Lee, as suggested in the Office Action, the resulting combination would still fail to teach or suggest steps of:

"(b) (1) mapping the data word unchanged into the corresponding code word if a sign of the RDS of the data word is different than a sign of the current RDS of the sequence of code words; and

(b) (2) complementing the data word if the sign of the RDS of the data word is the same as the sign of the current RDS of the sequence of code words."

Accordingly, Applicants respectfully request that the rejection under §103(a) based on a combination of Lee and Suh et al. be withdrawn.

B. Claim 5

Claim 5 recites that step of adding a binary symbol to the data word comprises adding a binary "0" to the data word in (b) (1) and adding a binary "1" to the data word (b) (2).

The Office Action suggests that, for claim 5, "Suh uses a '1' to mark a transition while a '0' signals the absence of a transition [column 7, lines 55-61]."

This citation is irrelevant to the limitations to claim 5. Column 7, lines 55-61 relate to a non-return to zero inverse (NRZI) pre-coding procedure in which the selected (d,k) constrained sequence is modulated for the recording medium such that a "1" becomes a transition and a "0" becomes an absence of a transition (such as a transition in the direction of the write current and the resulting magnetic field on the disc). A bit is not added.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,
WESTMAN, CHAMPLIN & KELLY, P.A.

By: David D. Brush
David D. Brush, Reg. No. 34,557
Suite 1400 - International Centre
900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

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